

### Remarks

The instant Office Action dated April 30, 2008, lists that following rejections: claims 1-3, 5, 13 and 15-16 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Dietze *et al.* (U.S. Patent No. 6,184,154); claims 4 and 6 stands rejected under 35 U.S.C. § 103(a) over Dietze; claim 7 stands rejected under 35 U.S.C. § 103(a) over Dietz in view of Mizushima *et al.* (U.S. Patent No. 6,395,621); and claim 14 stands rejected under 35 U.S.C. § 103(a) over Dietz in view of Meyerson (EP 0 459 122 A). The Office Action also indicated that claims 8-12 and 17 are objected to as being dependent on a rejected based claim, but would be allowable if rewritten in independent form.

In response to the allowability of claims 8-12, Applicant has rewritten claim 8 in independent form including limitations of base claim 1 with claims 9-12 depending from claim 8. Applicant submits that, as is consistent with the instant Office Action, claims 8-12 are in condition for allowance.

Applicant respectfully traverses the § 102(b) rejection of claims 1-3, 5, 13 and 15-16 and the § 103(a) rejections of claims 4, 6-7 and 14 (each of which is based on the Dietz reference) because the cited portions of Dietz do not correspond to the claimed invention which includes, for example, aspects directed to using an inert gas as the carrier gas. The Office Action erroneously asserts that Dietz teaches using nitrogen as a carrier gas. In contrast, the cited portions of Dietz teach that nitrogen is used as a purge gas, not as a carrier gas. *See, e.g.*, Col. 7:4-6. Specifically, Dietz teaches that the flow of gas containing a silicon source can be halted and the epitaxial reactor chamber 18 can be purged by introducing H<sub>2</sub> or N<sub>2</sub> via the main gas inlet 14 and gas inlet port 32. *See, e.g.*, Figures 1 and 2, and Col. 7:25-29. Moreover, a word search of the Dietz reference reveals that Dietz fails to make any mention of a carrier gas. Thus, the cited portions of the Dietz reference do not teach using an inert gas as the carrier gas as in the claimed invention. Accordingly, the § 102(b) rejection of claims 1-3, 5, 13 and 15-16 and the § 103(a) rejections of claims 4, 6-7 and 14 are improper and Applicant requests that they be withdrawn.

Applicant further traverses the § 102(b) rejection of claims 1-3, 5, 13 and 15-16 and the § 103(a) rejections of claims 4, 6-7 and 14 because the cited portions of Dietz do

not correspond to aspects of the claimed invention directed to the gaseous silicon compound being a mixture of a first gaseous silicon compound which is free of chlorine, and a second gaseous silicon compound which includes chlorine. The Office Action improperly asserts that Dietz teaches using a mixture of silane ( $\text{SiH}_4$ ) and dichlorosilane ( $\text{SiH}_2\text{Cl}_2$ ). In actuality, the cited portions of Dietz teach that a “mixture of gases, such as a silane-based gas, i.e. chlorosilane, dichlorosilane, trichlorosilane or tetrachlorosilane, hydrogen and a dopant, such as boron or phosphorous, is introduced into the epitaxial reactor chamber”. See Col. 7:36-39. Dietz teaches using a mixture of a silane-based gas, hydrogen and a dopant. Thus, Dietz teaches using a single silane-based gas (each example of which includes chlorine); however, Dietz does not teach using a mixture of a first gaseous silicon compound that is free of chlorine and a second gaseous silicon compound that includes chlorine as in the claimed invention. Accordingly, the § 102(b) rejection of claims 1-3, 5, 13 and 15-16 and the § 103(a) rejection of claims 4, 6-7 and 14 are improper and Applicant requests that they be withdrawn.

Applicant further traverses the § 103(a) rejection of claims 4 and 6 because the Office Action fails to establish a *prima facie* case of obviousness. The Office Action appears to be taking Official Notice that aspects of the claimed invention directed to use of a growth temperature range between 500 and 600°C and a pressure range between 120 and 160 Torr are well-known; however, the Office Action has not cited to any prior art reference to support this assertion. See, e.g., M.P.E.P. § 2144.03 (“It would not be appropriate for the examiner to take official notice of facts without citing a prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-known.”). As such, Applicant requests that the Office Action provide documentary support for the assertion that the claimed temperature and pressure ranges are well-known. Without such support, Applicant submits that the § 103(a) rejections of claims 4 and 6 are improper.

Moreover, the Office Action fails to provide any reason why the skilled artisan would modify the Dietz reference to use the claimed temperature and pressure ranges. This approach is contrary to the requirements of § 103 and relevant law. See, e.g., *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (U.S. 2007) (“A patent composed of several elements is not proved obvious merely by demonstrating that each element was,

independently, known in the prior art.”). In this instance, Applicant submits that the Office Action fails to even establish that each element is known, let alone provide a reason why the skilled artisan would modify the Dietz reference. Should any rejection based upon Dietz be maintained, Applicant requests that the Examiner provide a reason why the skilled artisan would modify Dietz to use the claimed temperature and pressure ranges.

In response to the Office Action’s assertions regarding routine experimentation and optimization of ranges, Applicant submits that the Office Action must first establish a *prima facie* case of obviousness by citing to a prior art reference that discloses an overlapping range (*see, e.g.*, M.P.E.P. § 2144.05(I)) before Applicant needs to present evidence of the criticality of the claimed range (*see, e.g.*, M.P.E.P. § 2144.05(III)). In this instance, the Office Action has not cited to any prior art reference, thus, the Office Action has not established a *prima facie* case of obviousness. Applicant notes that the Office Action appears to be improperly applying the holding in *In re Aller*, 105 USPQ 233, 1955. *In re Aller* involved a case where the claims *only* differed from the prior art with regard to the temperature and concentration (*see, e.g.*, M.P.E.P. § 2144.05). Here, the disclosure of the Dietz reference (Figure. 1) exhibits differences other than the ranges including, but not necessarily limited to, embodiments that use different types of gases. Thus, Applicant submits that the general conditions of the claim are not disclosed in the prior art and that the record does not support that routine experimentation of the device of the Dietz reference would result in the claimed ranges. For example, there are no teachings in the record that show that the claimed ranges would be an optimization to the combination asserted by the Office Action. Instead, the Office Action erroneously concludes that because Applicant’s claimed invention teaches such ranges, the same ranges would be applicable to the Office Action’s combination. Accordingly, the Office Action’s use of the holding of *In re Aller* is improper.

In view of the above, the § 103(a) rejections of claims 4 and 6 are improper and Applicant requests that they be withdrawn.

In view of the remarks above, Applicant believes that each of the rejections has been overcome and the application is in condition for allowance. Should there be any remaining issues that could be readily addressed over the telephone, the Examiner is asked to contact the agent overseeing the application file, Peter Zawilski, of NXP Corporation at (408) 474-9063 (or the undersigned).

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